REMARKS

This Amendment responds to the Office Action dated December 19, 2005 in which the Examiner rejected claims 3-5 under 35 U.S.C. §112 first paragraph and rejected claims 1-20 under 35 U.S.C. §103.

As indicated above, section headings have been added to the specification. In addition, a typographical error has also been corrected. Applicants respectfully request the Examiner approves the corrections.

Claims 3-5 were rejected under 35 U.S.C. §112, first paragraph. Applicants respectfully traverse. In particular, Applicants respectfully bring the Examiner's attention to Figure 8 as well as the discussion found on page 16 lines 12-27 of the specification as well as to page 4 lines 13-28. Since the claims contain subject matter which is described in the specification, Applicants respectfully request the Examiner withdraws the rejection to claims 3-5 under 35 U.S.C. §112 first paragraph.

Claim 1 claims a cooling ceiling installation with at least one heat exchanger, a valve, which controls the flow of a heat transfer medium through the heat exchanger and a mechanical control device, and a monitoring device against condensate formation. The monitoring device has an adjustment drive which mechanically displaces the control device to a state in which the valve is closed.

Through the structure of the claimed invention having a monitoring device against condensation formation having an adjustment drive which mechanically displaces a control device to a state in which a valve is closed, as claimed in claim 1, the claimed invention provides a cooling ceiling installation which avoids condensation formation in a simple manner. The prior art does not show, teach or suggest the invention as claimed in claim 1.

Claim 15 claims a cooling ceiling installation comprising a heat exchanger, an openable and closeable valve, a control device, a sensor and a motor. The heat exchanger is adapted to be supplied with a heat transfer medium. The openable and closable valve is operatively connected with the heat exchanger to control heat transfer medium flow to the heat exchanger. The control device is operatively connected to the valve to control opening and closing of the valve. The sensor determines a risk that condensation will form on the heat exchanger. The motor is operatively connected to the control valve and is operable according to output from the sensor to operate the control device based on the output from the sensor to change when the valve is closed.

Through the structure of the claimed invention having a) a control device operatively connected to an openable and closeable valve, b) a sensor which determines a risk that condensation will form on the heat exchanger and c) a motor which is operatively connected to the control valve and which is operable according to output from the sensor to operate the control valve, as claimed in claim 15, the claimed invention provides a cooling ceiling installation which can avoid condensation formation in a simple manner. The prior art does not show, teach or suggest the invention as claimed in claim 15.

Claim 18 claims a cooling ceiling installation comprising a heat exchanger, an operable and closeable valve, a control device, a sensor and a motor. The heat exchanger is adapted to be supplied with a heat transfer medium. The openable and closable valve is operatively connected with the heat exchanger to control flow of the heat transfer medium to the heat exchanger. The control device is operable to set a specified value and is operatively connected to the valve to control opening and

closing of the valve according to the specified value. The sensor determines a risk that condensate will form on the heat exchanger. The motor is operatively connected to the control valve to operate the control device according to output from the sensor so that when the sensor determines that a risk of condensate formation on the heat exchanger exists, the motor operates the control device to adjust the specified value to a different value. The different value of the control device causes the valve to open differently relative to when the valve opens under the specified value.

Through the structure of the claimed invention having a) a control device operable to set a specific value and operatively connected to a valve, b) a sensor which determines a risk of condensation and c) a motor operatively connected to the control value to operate the control device according to output from the sensor so that the motor operates the control device to adjust the specific value to a different value, as claimed in claim 18, the claimed invention provides a cooling ceiling installation which avoids condensation formation in the simple manner. The prior art does not show, teach or suggest the invention as claimed in claim 18.

Claims 1-12 and 15-17 were rejected under 35 U.S.C. §103 as being unpatentable over *Yamagishi* (JP 2001-349581) in view of *Danfoss* (EP 0923013).

Applicants respectfully traverse the Examiner's rejection of the claims under 35 U.S.C. §103. The claims have been reviewed in light of the Office Action, and for reasons which will be set forth below, Applicants respectfully request the Examiner withdraws the rejection to the claims and allows the claims to issue.

Yamagishi appears to disclose a building providing, independently of a room 2, with an area 1 equipped with a cooling panel P composed of a plurality of heat

exchange pipes each for guiding cold water. Walls or a ceiling of the room 2 are constructed with the foregoing cooling panel P. In contrast, there are provided a circulation passage 14 for circulating air between the room 2 and the area 1, supply mechanisms 10, 12 each for supplying dry air into the room 2 of the area 1, an exhaust passage 16 for exhausting air in the room 2 or the area 1 to the outside of the building, a condensation sensor S provided in the area 1 for detecting condensation, and a control for controlling a cooling water supplier for supplying cold water to the cooling panel based upon the condensation sensor S. (abstract)

Thus, *Yamagishi* merely discloses a controller for controlling a cooling water supplier for supplying cold water to a cooling panel based on a condensation sensor S. Nothing in *Yamagishi* shows, teaches or suggests a) a valve which controls the flow of a heat transfer medium through the heat exchanger or b) a condensation monitoring device having an adjustment drive which mechanically displaces a control device to a state in which the valve is closed as claimed in claim 1. Rather, *Yamagishi* merely discloses a controller controls a cooling water supplier based upon a condensation sensor (i.e., sensor S does not have adjustment drive and no valve is disclosed in *Yamagishi*).

Additionally, *Yamagishi* merely discloses a condensation sensor for detecting condensation and a controller for controlling a water supply based upon the condensation sensor. Nothing in *Yamagishi* shows, teaches or suggests a) a valve connected to the heat exchanger to control heat transfer medium flow to the heat exchanger, b) a control device operatively connected to the valve, c) a motor operatively connected to the control valve, d) a motor operable according to output from a condensation sensor or e) a motor operating a control device as claimed in

claim 15. Rather, *Yamagishi* merely discloses a sensor detecting condensation and a controller controlling a water supplier based upon the sensor.

Danfoss appears to disclose [0001] a thermostat head for a valve with a handle-free housing, with a regulating unit, which, on operation of an electrical activator, adjusts a contact surface controlling the valve and with a desired value input device operable by means of a signal generator. [0028] The thermostat head in Fig. 1 has a housing 1, which is fixed on the top part 3 of a radiator valve 4 by means of a socket 2. The housing 1 is shown to be a single part, in practice, however, it comprises several parts connected with each other. The valve 4 is activated in that an axially adjustable contact surface 5 acts upon a valve tappet 6, which is lead to the outside through a stuffing box 7. [0029] Between a supporting surface 8 of the housing 1 and the contact surface 5 a thermostatic element 9 and a regulatory unit 10 are arranged, which are connected with each other via a coupling surface 11. [0033] The regulating unit 10 comprises an unrotatable part 14 and a rotatable part 15, which are connected with each other via a screw thread 16. The rotatable part 15 carries a gear wheel 17, which is drivable by means of an electric motor 19, for example a stepping motor, via a pinion 18. The motor 19 is arranged in a bulge 20 on the housing 1, which also accommodates batteries 21 for driving the motor 19 and a control circuit 22. [0031] A control circuit 22 arranged inside the housing 1 has a desired value input device, which co-operates with a signal generator 23 and has, for example, a keyboard 24 and a display 25. The signal generator 23 is designed as the control circuit 22 occurs wirelessly or via a cable connection 26. By means of this signal generator 23 the desired value or a desired value programme meant for a longer period (day, week, year) is supplied to a

memory in the control circuit 22. Then each change of the desired value will cause the control circuit 22, which also comprises a timer, to drive the motor 19 by a measure corresponding to the change. The change of the length L2 caused by this specifies the new desired value for the thermostat head. [0033] In Fig. 2, in which a thermostat head for a refrigeration valve is shown schematically, reference signs increased by 100 in relation to Fig. 1 are used for corresponding parts. Initially, a difference is that the thermostatic element 109 contains a fluid-steam filling an is connected with a remote sensor 128 via a capillary tube 127. Thus, via an intermediate link 129 the thermostatic element 109 acts upon a reversing device 130 in the form of an angled lever, whose second arm is loaded by the counter flange 131 of a spring 132. For this reason the unrotatable part 114 of the regulating unit 110 assumes a position depending on the steam pressure in the thermostatic element 109 and the power of a spring 132 counteracting this steam pressure. This leads to a reversal of the operational direction of the thermostatic element 109 with regard to the contact surface 105. A motor-driven adjustment of the gear wheel 117 will change the length of the regulating unit 110 and thus also the desired value. In this embodiment the signal generator 123 is arranged at the front side of the housing 101.

Thus, *Danfoss* merely discloses a thermostat head used for room heating which can remotely set a temperature. Nothing in *Danfoss* shows, teaches or suggests a) a cooling ceiling installation, b) a monitoring device against condensation formation or c) a monitoring device having an adjustment drive which mechanically displaces a control device to a state in which a valve is closed as

claimed in claim 1. Rather, *Danfoss* merely discloses a thermostatic head for a valve which is remotely controllable for temperature.

Danfoss merely discloses a control circuit 22 which has a desired value input device and cooperates with a signal generator 23 as a remote control to set a temperature. Nothing in *Danfoss* shows, teaches or suggests an adjustment drive which displaces a control device based upon monitoring condensation formation as claimed in claim 1. Rather, control 22 merely sets a desired value of temperature for the thermostat head.

Also, since *Danfoss* is merely directed to a thermostat head which is programmable, nothing in *Danfoss* shows, teaches or suggests a) a sensor that determines a risk that condensation will form on the heat exchanger as claimed in claim 15 or b) a motor which is operable according to output from the sensor as claimed in claim 15.

Furthermore, *Danfoss* merely discloses an electric motor 19 in order to change the temperature setting of the thermostat head. Nothing in *Danfoss* shows, teaches or suggests a motor operable according to an output from a condensation sensor as claimed in claim 15.

A combination of *Yamagishi* and *Danfoss* would merely suggest to have a controller to control the cooling water supplier based on the condensation sensor as taught by *Yamagishi* and to adjust the desired temperature as taught by *Danfoss*. Thus nothing in the combination of the references shows, teaches or suggests a) a monitoring device having an adjustment drive which mechanically displaces a control device based upon condensation formation as claimed in claim 1 or b) a motor operable according to an output from a condensation sensor to operate a control

device based upon the output from the sensor as claimed in claim 15. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claims 1 and 15 under 35 U.S.C. §103.

Claims 2-12 and 16-17 depend from claims 1 and 15 and recite additional features. Applicants respectfully submit that claims 2-12 and 16-17 would not have been obvious within the meaning of 35 U.S.C. §103 over *Yamagishi* and *Danfoss* at least for the reasons as set forth above. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claims 2-12 and 16-17 under 35 U.S.C. §103.

Claims 1-20 were rejected under 35 U.S.C. §103 as being unpatentable over D64646 in view of *Danfoss*.

Applicants respectfully traverse the Examiner's rejection of the claims under 35 U.S.C. §103. The claims have been reviewed in light of the Office Action, and for reasons which will be set forth below, Applicants respectfully request the Examiner withdraws the rejection to the claims and allows the claims to issue.

A monitoring device against condensate formation is, for example, described in the brochure "Massgeschneiderte Regellösungen für Kühl- und Heizstrahldecken" of the Zent-Frenger Gesellschaft für Gebäudetechnik mbH, D-64646 Heppenheim. With increasing room temperature, the valve controlling the flow of the heat transfer medium through the heat exchanger, is opened. Such a system is typically dimensioned for an inlet temperature of 14°C and a return temperature of 16 to 19°C. With higher air humidity, there is, as mentioned above, a risk of condensed water formation on the cooling ceiling. This risk is not eliminated in that the valve is controlled, for example via a thermostatic controller. In order to counteract the

condensate formation, the known case combines the room temperature control in an electronic manner with an integrated condensate monitoring. In principle, there are two different control forms. Measuring of the dew-point or the relative air humidity are made currently, and when a critical point is reached, the inlet temperature is increased, that is, an active condensate monitoring, or the valve is closed, so that the cooling ceiling is "turned off", that is, a passive condensate monitoring. (Specification page 1, line 30 through page 82, line 19)

Thus, D64646 merely discloses the general principles of monitoring against condensation formation. Nothing in D64646 shows, teaches or suggests the exact structure as claimed in claims 1 and 15. In particular, nothing in the 64646 shows, teaches or suggests a) a valve which controls the flow of a heat transfer medium, a mechanical control device, a monitoring device against condensation formation having an adjustment drive which mechanically displaces the control device to a state in which the valve is closed as claimed in claim 1, b) an openable and closeable valve, a control device operatively connected to the valve and a motor operatively connected to the control valve and operable according to an output from the sensor to operate the control device based on the output from the sensor as claimed in claim 15 or c) an openable and closeable valve, a control device operable to set a specific value and operatively connected to the valve and a motor operatively connected to the control valve to operate the control device according to output from a condensation sensor so that when the sensor determines that a risk of condensation formation on the heat exchanger exists, the motor operates the control device to adjust the specified value to a different value as claimed in claim 18.

Rather, D64646 only discloses two different control forms, one to measure the dew-point or relative air humidity along with a thermostatic controller.

As discussed above, *Danfoss* merely discloses a thermostatic head which is remotely controlled. Nothing in *Danfoss* shows, teaches or suggests monitoring condensation or a sensor therefore as claimed in claims 1, 15 and 18. Furthermore, as discussed above, the motor 19 of *Danfoss* is for adjusting the desired set temperature from the signal generator 23. Nothing in *Danfoss* shows, teaches or suggests a) a monitoring device has an adjustment drive as claimed in claim 1, b) a motor operatively connected to the control valve and operable according to an output from a condensation sensor as claimed in claim 15 or c) a motor operatively connected to the control valve to operate the control device according to the output from the sensor so that when the sensor determines a risk of condensation, the motor operates the control device to adjust a specific value to a different value as claimed in claim 18.

A combination of D64646 and *Danfoss* would merely suggest to replace the thermostatic controller of D64646 with the thermostatic head of *Danfoss*. Thus nothing in the combination of the references shows, teaches or suggests the primary features as claimed in claims 1, 15 and 18 as discussed above. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claims 1, 15 and 18 under 35 U.S.C. §103.

Claims 2-14, 16-17 and 19-20 depend from claims 1, 15 and 18 and recite additional features. Applicants respectfully submit that claims 2-14, 16-17 and 19-20 would not have been obvious within the meaning of 35 U.S.C. §103 over the references at least for the reasons as set forth above. Therefore, Applicants

respectfully request the Examiner withdraws the rejection to claims 2-14, 16-17 and 19-20 under 35 U.S.C. §103.

Thus it now appears that the application is in condition for reconsideration and allowance. Reconsideration and allowance at an early date are respectfully requested.

If for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is requested to contact, by telephone, the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed within the currently set shortened statutory period, Applicants respectfully petition for an appropriate extension of time. The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,

BUCHANAN INGERSOLL PC

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